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ABSTRACT

A research project used data from a national comparative study to examine whether service learning improved students' problem solving or contributed to a more complex understanding of social issues. In a pilot study, students with no, limited, and intensive service-learning experience were interviewed about a social problem and how they would solve it. When the interviews were analyzed for differences, a number of themes emerged. The students with extensive experience and well-integrated service learning tended to approach the social problems related to their service in a more complex and thorough way and were more likely to have well-developed strategies for citizenship action.than those with limited experience. In a more systematic study, an interview protocol was designed to allow students to analyze problems related to their service both before and after their service learning semester. Subjects were 55 college students from 6 colleges who were interviewed at the start and end of the spring semester of 1996, most of whom participated in either an intensive service-learning class where the service was integrated into the course or in a class where service was an option, and 12 students in classes with service options who did not choose the option. Expertise in social problem solving and community action resulted from service learning, and careful integration of service into the course rather than making it an option helped instructors design more effective community-based instruction. (Contains 13 references.) (YLB)

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ED 408 506

Service-Learning and the Development of Expert Citizens

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Why Study Service-Learning?

"Service, combined with learning, adds value to each and transforms both" (Honnet and Poulsen, 1989) This quote captures the core of widely held practitioner belief about what is unique in service-learning Learning improves the quality of service today and more importantly helps sustain it throughout a citizen's life; service transforms learning, changing inert knowledge to knowledge and competencies that students can use in their communities. And this practitioner wisdom about effective learning is consistent with a long tradition of experiential learning theory from Dewey to modern cognitive scientists. When students as part of their coursework perform community service, they have the opportunity to address authentic problems in the field and bring critical analysis to bear; service-learning encourages students to generate and answer real questions and helps them develop a nuanced understanding of issues in situational context. (Giles and Eyler, 1994; Anderson, 1989; Bransford ,1993; Bransford and Vye, 1989; Eyler and Halteman, 1981)

This belief that service leads to better learning has led to a virtual explosion of service-learning programs (O'Brien, 1993) While the political support for such programs has grown, there is very little empirical research to go along with the social and theoretical justifications for service-learning. The need to anchor programs in a knowledge base has led to a growing demand for research information about the effects of service-learning on cognitive outcomes. Most of the research that has been done focuses on the effects of service on attitudes and values. While there is some limited evidence that service can increase conventional classroom knowledge acquisition (Markus, Howard and King, 1993), most studies have not shown an impact on increased factual knowledge. There is growing evidence that the unique contribution of service is more likely to involve improvements in problem solving or more complex understanding of social issues. (Eyler and Giles, in press)

This paper is based on data gathered as part of a national comparative study that seeks to fill this critical gap in the research literature. Using the theoretical perspective developed by cognitive scientists concerned with how 'experts' and 'novices' deal with ill structured problems this study will:

1. Compare problem solving strategies of students with extensive service experience and less extensive experience.

2. Identify changes in students' problem solving over the course of a semester in which they participated in a class with a community service component.

3. Compare changes in problem solving over the course of a semester between students who had intensive service-learning classes with well developed integration of service and subject matter with students who experienced their service-learning as an add on option to the class or who did not participate in a service option.

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Methods of the Study

Pilot Study. In a pilot study , students with no service experience, limited service-learning experience and intensive service-learning experience were interviewed about a social problem and how they would solve it. When these interviews were analyzed for differences a number of themes emerged. The 'expert' or 'benchmark' students with extensive experience and well integrated service-learning tended to approach the social problems related to their service in a more complex and thorough way than those who had limited experience; they were also more likely to have well developed strategies for citizenship action. Those with limited experience were more likely to jump to quick solutions and tended to form simplistic analyses; their suggestions for action were also simplistic such as suggestions that the problem of children performing poorly in school could be solved by " *just telling* their parents to pay more attention to them." (Eyler, Root and Giles, in press)

These patterns were similar to those noted in the expert/novice literature about ill structured problems i.e. the type of problems faced by social scientists and those addressing community problems. In problem solving, experts devote significantly greater amounts of time to problem representation, while novices tend to jump to a quick solution. Once a problem is clearly described, experts tend to engage in "forward" or data-driven reasoning, considering the specifics of a problem and then generating a solution, while novices tend to engage in "backward reasoning," creating a hypothesis relatively early in problem solving and then seeking confirmatory evidence. Social science experts tend to adopt one of two heuristics for solving problems: problem decomposition, breaking the problem into manageable subproblems or problem conversion, transforming the problem into a familiar problem with a known solution. Their causal analysis is more complex. They tend to provide general solutions to problems, followed by solutions to subproblems which are integral to the overall solution. And these solutions are linked to the earlier problem diagnosis. Experts also generate solutions in which a large number of statements are devoted to "argument," i.e. justifications for the proposed solution. Finally, experts just know more about the problem and its context; they are able to formulate solutions based on their experience with similar problems and similar contexts and they are able to apply it in novel situations. (Voss et al., 1983; Swanson et al, 1990)

Current Study . Because the pilot confirmed the relevance of expert/novice theory to the learning that might be expected in service-learning, a more systematic study was attempted. An interview protocol was designed to allow students to analyze problems related to their service both before and after their service-learning semester. Fifty five college students from 6 colleges were interviewed at the beginning and end of the spring semester of 1996. Most students were participants in either an intensive service-learning class where the service was integrated into the course or in a class where service was an 'add on' option less central to the day to day work of the class. e.g. one class studied public policy related to the health care crisis and AIDS and also participated in a spring break service trip, another class allowed students to choose to volunteer as tutors in lieu of another assignment. There were also 12 students who participated in classes with service options, but who did not choose this option. The interviews took about 50 minutes each and were audio taped and transcribed for analysis. Students also completed questionnaires about their service and service-learning history.

Interview protocols were analyzed using variables that emerged from the expert/novice literature and from the earlier pilot study. These included: problem finding; problem locus; solution locus; causal complexity; solution complexity; community solution strategy; and personal strategies for community action.

Analysis was performed using hierarchical multiple linear regression using reflective integration as the primary predictor and controlling for age, gender, previous community service and previous participation in service-learning classes. A .05 level of significance was adopted although nearly all results were significant at .01 or more.

Preliminary Results of the Study

Causal Complexity. Participation in highly integrated and reflective service-learning classes was the only significant predictor with a beta of .37 of complex analysis of causation of the social problem at the end of the semester. Even the pre-test measure of causal complexity was not a significant predictor. Students in these reflective service-learning classes were more likely to identify multiple causes and stakeholders and anchor the causal analysis in context.

Solution Complexity. Reflection and integration was also a significant predictor of the complexity of the solution advocated by the participant at the end of the semester; the beta was .36. Also significant was the pre test measure of solution complexity as well as gender, with women offering more complex solutions. Highly complex solutions connected causes and solutions, offered multiple contextualized solutions supported with analysis.

Problem Locus. Reflection and integration was also a significant predictor of students tendency to situate the problem in a complex system rather than focus on individual mental states or behaviors. The beta for this equation was .28; age with a beta of .32 and the pre test with a beta of .47 were also significant predictors.

Solution Locus. Participation in highly integrated and reflective service-learning classes was a also a predictor of solution locus with a beta of .46. The pre test was significant with a beta of .30. High scoring solutions placed the solution in a complex systemic context.

Solution Strategy. Participation in highly integrated and reflective service-learning classes was the only predictor of choosing a solution strategy that was oriented to policy change. The beta was .32.

Personal Strategy. Participation in highly integrated and reflective service-learning classes was also a significant predictor of a sophisticated personal strategy for community service with a beta of .53; age with a beta of .25 and the pre test strategy with a beta of .40 were also predictors. These students were knowledgeable about current community organizations and had a clear practical orientation to processes for effective involvement.

Implications for Practice

Expertise in social problem solving and in community action are desired outcomes of higher education. Evidence that service-learning contributes to these outcome strengthens our ability to institutionalize these opportunities; many service related programs are currently marginal to the curriculum and to the institution. Evidence that links particular program characteristics e.g. careful integration of service into the course rather than making it an add on option , also helps instructors design more effective community based instruction.

The scoring protocol for analyzing interviews will also be adapted into a format that instructors can use to assess student essays and projects as they evaluate the impact of their class on the development of students' thinking about social problems.

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